Statement of Work for a New
Support for Market-Based
Air Emissions Control Programs

I.   SCOPE

The purpose of this procurement is to provide technical and analytical support primarily to the U.S. Environmental Protection Agency (EPA) Clean Air Markets Division within the Office of Atmospheric Programs. This contract requires the contractor to perform work in the following task areas:

A - Economic, Environmental, Statistical, Financial, and Evaluative Analyses and Support

B - Technical and Engineering Analyses

C - Communication, Outreach, Guidance, and Regulatory Program Support

D - Business Process Re-engineering and Computer System Support

E - Analysis of Greenhouse Gas Emissions

F - Analyses of National and Global Strategies for Limiting Global Atmospheric Changes

G - Support for Market Mechanisms in Developing Countries and Economies in Transition

The Contracting Officer will issue work assignments for all work required under this contract in accordance with the terms and conditions of the contract. The contractor shall submit all work products in draft for review and approval by appropriate Government personnel prior to preparation and issuance in final, in accordance with the terms and conditions of the contract. The Government will make all final determinations and decisions after a critical and close review of the contractor's work product and reasons/basis for the contractor's recommendations. The contractor shall not represent itself as EPA to outside parties. To maintain public trust, the contractor shall identify themselves as agency contractors, at the onset of any communications with outside parties.

II   BACKGROUND

EPA's Clean Air Markets Division (CAMD) in the Office of Atmospheric Programs (OAP) within the Office of Air and Radiation has the primary responsibility for developing and implementing the Acid Rain Program, as authorized under Title IV of the Clean Air Act Amendments of November 15, 1990 (CAAA). The contractor will be required to perform a wide

range of analyses required under Titles I, IV, VIII, and IX of the CAAA.   For example, sections 812 and 901(j) of the CAAA require benefit/cost analyses that focus on the public health, economy, and environment of the United States. In addition, analyses may be necessary for other rulemaking activities related to the development, operation and evaluation of a range of market-based programs or any analyses related to power generation and the pollutants associated with it including sulfur dioxide (SO_2), nitrogen oxides (NOx), and mercury (Hg). Analysis may also be required to meet the support for U.S. international agreements, including the 1991 U.S.– Canada Air Quality Agreement.

EPA is responsible for quantifying and reporting United States greenhouse gas emissions and sinks to the United Nations under the Framework Convention for Climate Change. Support characterizing and estimating emissions may be needed from the contractor. Analytical support, including economic analyses, for both domestic and international greenhouse gas control strategies will be required with an emphasis on using market-based mechanisms similar in nature to Title IV of the CAAA. The contractor will also need to provide analytical support to help build capacity for market mechanisms in developing countries and countries with economies in transition.

The contractor will be required to perform systems design, development, installation, operation, administration, and business re-engineering in support of various programs. The contractor shall also provide support for outreach and communications. Contractor support is intended to provide the Agency with the flexibility to carry out other mandates and future initiatives related to the Statement of Work. Analyses may also be required for evaluating other future market-based environmental programs.

III.   TASK DESCRIPTIONS

A.   Economic, Environmental, Statistical, Financial, and Evaluative Analyses and Support

The contractor shall:

(a)   Perform cost-effectiveness analyses of market-based programs relative to other regulatory approaches and regulation by other sources and identify alternative measures to increase program effectiveness.

(b)   Develop and conduct written and oral surveys in compliance with program requirements. This includes the development of the survey plan, design and testing of questionnaires, collection and analysis of the results, and reporting on the findings.

(c)   Design statistical procedures for the verification and analysis of allowance allocations and for annual reconciliation of emissions/allowances for program compliance.

(d)   Perform statistical analyses on large emissions monitoring or other environmental monitoring data bases for regulatory development, evaluation, compliance, and quality assurance. This may require designing sampling procedures, screening data to determine applicable statistical techniques, and applying descriptive and inferential statistical analysis, including parametric and non-parametric tests, regression, correlation, and times series analysis, and other multi-variate methods. Results may require development and presentation in hard copy format, in software files (*e.g.*, SAS or spreadsheet files), and in interactive computer displays.

(e)   Perform studies on international market-based air pollution control programs including possible case studies and comparisons of programs.

(f)   Perform cost-effectiveness analyses, economic analysis, statistical analysis, and regulatory flexibility analysis on emission trading issues.

(g)   Analyze economic and environmental impacts of inter-pollutant and international trading scenarios, including case studies, and economic and scientific analysis.

(h)   Assess implications of potential government policies on the regulated community.

(i)   Assess the performance and effects of prospective market-based programs (*e.g.*, Hg, multi-pollutant , carbon dioxide [CO_2], particulate matter [PM], others), including the economic impact of various forms of market programs versus other options.

(j)   Assess the performance of the Acid Rain Program and other market-based pollution control programs, including the Ozone Transport NOx Budget and Western Regional Haze Programs and make recommendations for overall program implementation, streamlining, and improvements.

(k)   Assess the impacts of deregulation and competition in the electric power generation industry on emissions levels and compliance strategies.

(l)   Assess the impacts of legislative or regulatory changes affecting the utility and other industrial sectors on the implementation and performance of the Acid Rain Program. Such evaluations may include the changing roles of non-utility generators (NUGs) and Independent Power Producers (IPPs). Assess the impacts of restructuring of the electric power generation industry.

(m)   Assess and synthesize technical information pertinent to evaluation and benefit studies of market-based programs.

(n)   Perform field surveys, ambient and environmental sampling, and other environmental research to determine the effectiveness of the market-based and other air pollution control regulatory programs. Scope includes both atmospheric deposition and ecological (e.g., freshwater and terrestrial) research, monitoring, and assessment.

(o)   Perform economic analysis using economic models. The contractor shall possess the ability to run and conduct analyses using the outputs of general equilibria models, bottom-up technology models, and macro-economic models. The contractor should have national and international economic models available for use. In addition to the analysis of the economic impacts of environmental policies, the contractor shall develop, update and model parameters using econometric techniques. The contractor shall also modify modeling code to incorporate new features, perform quick turn-around modeling exercises, develop spreadsheets to enhance model functionality; and develop or periodically re-calibrate model baselines.

(p)   Perform cost/benefit or co-benefit analyses including the quantification and valuation of benefits using techniques such as contingent valuation, cost-of-illness, risk analysis, estimating dose-response and concentration-response functions. Cost/benefit analyses may also include incidental benefits, such as incidental pollutant removals. Such analyses may be necessary for existing programs as well as for scenarios involving potential future emissions reductions of NO_X, SO_2, mercury, and their byproducts.

(q)   Perform atmospheric, environmental and ecological modeling and provide analyses of data including the development of graphical or other pictorial (e.g. maps) materials. Analyses may also involve the development of various projections and forecasts of emissions for use in modeling. Ecological modeling shall include water and watershed modeling and data analysis. Models may be altered to meet CAMD needs. Input data for modeling deposition shall be calculated or acquired.

(r)   Provide continuing analysis of Title IV Acid Rain Program, extending analysis to include Phase II and NOx Emission Reduction Programs.

(s)   Perform analyses of U.S.- Canada transboundary NOx in support of the current ozone annex to the U.S. – Canada Air Quality Agreement.

(t)   Perform air quality modeling. The scope includes preparing emissions and

4

processing data for utility and non-utility sources from EPA and other sources for air modeling assessment; (2) Collecting ambient measurement data, processing, and assimilation for assessment and air model evaluation; (3) Developing air models and providing testing, evaluation, and options for related pre-and-post processing; (4) Developing graphics, including animated simulations and static graphics for air model; (5) Collecting, compiling, and analyzing data on emissions, air quality modeling, and monitoring, and report writing. Scope also includes quality assurance and peer review support.

B. Technical and Engineering Analyses

The contractor shall perform the following technical and engineering analyses:

(a)   Technical reviews of permit applications, alternative emission limitations, compliance plans, and record keeping and reporting requirements to determine compliance with applicable regulations.

(b)   Technical reviews of facility and environmental data submitted to the Acid Rain Program, NO_X Budget Program, and future multi-state trading programs by comparing submitted data with data contained in other available data bases.

(c)   Reviews of monitoring plans, quality assurance tests, and emissions data submitted to the Agency and evaluate technical documentation to assess compliance with applicable regulations.

(d)   Examine literature regarding existing technologies industrial processes that emit pollutants such as SO_2, NOx, Hg, other air toxics, and particulate matter, and CO2 Evaluate appropriate emission control or reduction technologies and possible future innovations.

(e)   Assess the impact of the Clean Air Act Amendments of 1990 on the availability, costs, and performance of energy savings and pollution prevention technologies. Review emerging technological, regulatory, and marketing innovations related to energy efficiency and renewable energy technologies.

(f)   Analyze alternative procedures in lieu of continuous emission monitors (CEMs) for monitoring emissions from affected units, and/or procedures for substituting missing data using parametric and statistical approaches.

(g)   Perform field tests and studies: (1) to assess the appropriateness and effectiveness of air pollution control systems in limiting SO_2, NOx, Hg, CO2 and other emissions; (2) to assess the appropriateness and effectiveness of continuous

emission monitoring systems or other emissions quantification techniques for measuring or quantifying parameters such as SO_2, flow, NOx, diluent gas, Hg, CO2, and opacity; and (3) To examine new reference methods or systems for use with continuous emission monitoring.

(h)   Perform engineering and costing studies and analyze performance test data on the emission reductions of various pollutants, such as NOx and Hg, that can be achieved on electric power generation and industrial boilers firing various types of coal in the U.S. and overseas. These studies and analyses shall include several types of coal-fired boilers. Analyze possible boiler operating parameter impacts of various controls.

(i)   Perform engineering and costing studies and analyze performance test data on the emission reductions that can be achieved on various pollutants, such as SO_2, NOx, Hg, and CO2 in support of the air program.

(j)   Assess control technology for all types of boiler and turbine operations. In addition, evaluate the performance and control of both electric power generation and industrial boilers required to meet the New Source Performance Standards (NSPS), State Implementation Plans (SIPs), and CAA Title IV and Section 126 requirements.

(k)   Evaluate utility dispatching practices and electric reliability issues.

(l)   Prepare and implement written, automated, and multimedia training tools for electronic and field audit training activities.

(m)   Perform selected field audits or provide technical data in support of EPA/State regional field offices.

(n)   Determine the impact of new and revised program rules on existing program activities and associated computerized data systems

C. Communication, Outreach, Guidance, and Regulatory Program Support

Communication, outreach, guidance, and regulatory program support may be required for the Acid Rain Program as well as other market-based environmental programs. The contractor shall provide communications support, including web development, for outreach and guidance to the affected community in the implementation of existing and new programs or regulations. These programs may need communication assistance with both technical and general implementation issues. In addition, support will be needed for outreach to audiences outside the regulated

industry, including the general public. Specifically, the contractor shall:

(a)   Provide support in the development of communication plans, including a communications strategy to improve understanding among stakeholders and the general public of clean air market programs, results, and applicability.

(b)   Establish communication and information-transfer networks to disseminate information including the operation of an established hotline, clearinghouse, dockets or electronic bulletin boards that could provide technical support services.

(c)   Develop training and presentation materials on program requirements and associated tools, e.g., Monitoring Data Checking (MDC) software for Agency staff, the regulated community, State agencies, environmental groups, and other critical public parties.

(d)   Plan and conduct workshops for affected industry, EPA Regional offices and State environmental departments on topics such as permit writing, meeting program requirements, and computer systems to be used for auditing, reporting, and quality assurance activities.

(e)   Attend public hearings, advisory meetings and CEMS /Data Acquisition and Handling Systems (DAHS) vendor meetings related to program implementation.

(f)   Provide support functions for meetings, conferences, hearings and seminars with EPA Regions, States, tribes, other countries, the regulated community, and other interested groups. For example, the contractor may secure facilities; prepare agendas; take notes; develop presentations; supply, set-up, and run audio/video equipment; demonstrate software applications; conduct registration; copy and distribute handouts; and prepare the presentation materials and answers to questions asked during the events ready for posting on EPA websites.

(g)   Design and prepare program information materials including fact sheets, brochures, booklets, progress reports, and guidance documents (written, audio-visual, and electronic materials).

(h)   Prepare graphics for and draft presentations and reports.

(i)   Provide graphic, editorial and report drafting support for technical documents. Such support shall include technical writing and communication of technical, scientific, and engineering information.

(j)   Develop record keeping processes or systems to manage the receipt of large

volumes of electronic and hard copy material such as permit applications, ambient and deposition monitoring submissions, source monitoring submissions, certification and recertification applications, and forms, and to process them quickly and efficiently (*i.e.*, using a processing center or interactive formats).

(k)   Consolidate, organize, and research answers to public comments received on rulemakings.

(l)   Develop, categorize, and organize materials for rulemaking dockets and regional permit records dockets.

(m)   Collect data in support of Freedom of Information Act requests and federal enforcement actions.

(n)   Design, develop, and implement client server-based communication systems. These communication systems shall provide access for the sharing of market systems data, and emissions tracking system data to State Agencies and other public groups.

(o)   Draft and finalize program Electronic Data Record (EDR) forms and EDR instructions.

(p)   Provide general web support, including design and creation of new HTML/web pages, maps graphics, spiders and written text.

D.   Business Process Re-engineering and Computer System Support

This task area includes development and re-engineering information systems, databases, geographic information systems (GISs), and models to analyze particular regulations, policies, issues, or to implement routine program implementation activities. Some of these systems will need to be publicly accessible in a web environment and a large, high volume internal database will be required to support most systems. Specifically, the contractor shall:

(a)   Analyze management and functional requirements specified by EPA and develop detailed technical requirements which lead to system design and development.

(b)   Perform detailed analysis of information processing requirements related to organizational mission objectives and functional activities.

(c)   Design required system modules, and develop detailed design specifications including defining data sources and format, systems module interfaces, data flow through the system, information processing steps, data generating, and output

reporting.

(d)   Refine design specifications applicable to individual system modules and include information related to hardware/software physical characteristics, data base and data file structures, schema, record layouts, data linkages, data integration techniques and data processing specifications.

(e)   Develop coded instructions using an approved procedural or non-procedural program language and perform rigorous testing of developed applications and systems. Applications that will need to be coded include complex client-side quality assurance checking and data submission tools, graphical web-based database interfaces, and web-based transaction processors and form entry screens.

(f)   Provide system and application documentation and training for system users and other interested personnel.

(g)   Provide technical writing and text editing necessary to document the system design and functional capabilities.

(h)   Perform database and system administration in both mainframe and server environments. Administration includes making updates to database tables, adding new database tables, troubleshooting problems with servers, and performing back-ups of the data contained on servers.

(i)   Provide operating system support for Sun Solaris OS, and Microsoft NT, and installation, configuration, and maintenance of applications running on these operating systems , including Cold Fusion, SAS, ESRI Products (e.g., ArcINFO, ArcIMS, ArcSDE, ArcView), Oracle, and Samba.

(j)   Monitor the functioning of the tracking and information systems, identify problems, recommend solutions, develop proposals for continually improving system performance. This may require periodically surveying system users and keeping constantly abreast of the latest developments in data base software and technology and in decision support systems.

(k)   Provide hot-line support to assist users with installing and running developed applications.

(l)   Provide support for installing hardware and loading necessary applications on a server.

(m)   Provide technical recommendations for system architecture infrastructure issues.

E. Analysis of Greenhouse Gas Emissions

EPA is responsible for quantifying and reporting United States greenhouse gas emissions and sinks under the Framework Convention for Climate Change. These assessments require information on emissions sources and sinks, and estimates of potential changes in human activities that cause and influence emissions. The contractor shall:

(a)   Identify and characterize emissions sources in all sectors.

(b)   Identify how human-made and natural sources and sink categories will change over time in different geographic regions

(c)   Provide assistance and support to countries conducting national inventories and plans for reducing greenhouse gas emissions

(d)   Conduct or coordinate research, experiments, demonstrations, surveys, and studies into greenhouse gas emissions sources and sinks

(e)   Develop methodologies to quantify greenhouse gas emissions for use in the U.S. and internationally

(f)   Develop and analyze strategies, systems, and methodologies for monitoring and verifying emissions and emissions reductions from projects in all sectors

(g)   Develop quality assurance and quality control procedures for emissions inventories

(h)   Conduct studies comparing source level "bottom up" inventories with sectoral or national "top down" inventories

F. Analyses of National and Global Strategies for Limiting Global Atmospheric Changes

The contractor shall analyze:

(a)   Economic incentives for reducing greenhouse gas emissions;

(b)   Economic and cost analyses of technical options for reducing emissions and enhancing carbon removal from sinks;

(c)   Trade and other macro-economics effects of reducing emissions, including

assessments of benefits or tradeoffs across economics sectors and between nations, and the possible effects on competitiveness and export markets, employment, income levels, distribution of income, and other social and economic factors;

(d)   Voluntary initiatives to reduce greenhouse gas emissions;

(e)   Integrated analysis, including multi-sector analysis and multi-disciplinary analysis (e.g. ecological, economic, social, etc.);

(f)   Ancillary benefits of reducing emissions, including environmental, social, and economic development benefits;

(g)   Reducing emissions through the use of energy efficient technologies, hydro-electric power, geothermal energy, wind biomass, photovoltaic and other renewable energy technologies, nuclear, and switching from coal to natural gas, reducing pipeline gas leaks, recovering methane from landfills and coal mines, and modifying combustion techniques;

(h)   Reducing emissions of CFCs, halons, and other greenhouse gases. Assessments of options may include analysis of markets for these techniques and the cost and conditions necessary to achieve significant market penetration;

(i)   Enhancing carbon removal from sinks through afforestation, reforestation, forest protection, recycling wood products, soil improvement, and sustainable agriculture; and

(j)   The requirements and optimal structure of a greenhouse gas reporting program with the ability to register greenhouse gas emission reductions from participating facilities.

G.   Support for Market Mechanisms in Developing Countries and Economies in Transition

Market mechanisms can help developing countries and economies in transition (EITs) provide capital for investment in emission reductions while providing the developed world with lower cost greenhouse gas emissions reductions. In some cases, designing cap and trade programs for conventional pollutants can help these countries address local health problems while building capacity and experience for greenhouse gas market mechanisms. The contractor shall:

(a)   Develop baseline, monitoring, verification and a few methodologies for project-level emissions offsets.

11

(b)   Develop an emissions and allowance tracking system suitable for use by other countries with trading programs.

(c)   Use pilot programs to test and promote cap and trade and other market mechanisms in developing countries and EIT's.

(d)   Conduct economic analyses of the benefits use of market mechanisms including cap and trade programs and project-level trading activities.

(e)   Develop handbooks, tracking systems, training, and other tools to build capacity for market mechanisms.

(f)   Conduct economic analyses and emissions projections for developing countries to assess potential developing country commitments to reduce greenhouse gas emissions, building upon market mechanism experience.

DRAFT